Comprehensive Plan Summary

Title: 2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls (PCBs) in the Spokane River[1]

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Prepared for/released by: Spokane River Regional Toxics Task Force (Task Force) est. 2012 under a MOA[2] and after WA NPDES wastewater discharge permits issued in 2011 by Ecology for facilities discharging into the Spokane River included the requirement for creation of the Task Force. The goal of the Task Force is to develop this Comprehensive Plan and bring the Spokane R. into compliance with applicable WQS for PCBs. Without progress, Ecology will proceed with a TMDL or an alternative approach. The Task Force consists of NPDES permittees in the Spokane River Basin (including from Idaho), conservation and enviro interests, the Spokane Tribe of Indians and Coeur d'Alene Tribe, Spokane Regional Health District, Ecology and IDEQ, EPA, and others.

Purpose

To guide projects in Idaho and Washington that will identify, reduce and eliminate PCB sources to the Spokane River. It lays out findings from several years of studies that measured the extent of PCB pollution in various sections of the river and identified sources of PCBs and how they reach the river.

Impaired Water Bodies for PCBs under CWA 303(d) listing:

Nineteen waterbody segments of Spokane River, Lake Spokane, and Little Spokane River. Impairments based on measured fish tissue concentrations that exceed fish tissue equivalent concentrations for applicable WQS, not based on PCBs measured in the water column. Ambient surface WQ monitoring data (2014-2016 at eight river sites) show water column central tendency (arithmetic mean) range 17-154 pg/L total PCB (current WA WQS = 170 pg/L; Spokane Tribe of Indians WQS = 1.34 pg/L; WA rule WQS = 7 pg/L)[3].

PCB source areas:

Legacy[4] PCBs considered the largest source areas -- *from buildings* (fixed sources: caulk [also, paints and sealants], a Spokane study estimated 2969kg ±60-130,000 kg in the Spokane watershed; non-fixed sources: fluorescent light ballasts and appliance capacitors, an estimated 50-40,000 kg in the Spokane watershed) and *soil contamination* (surface soils, an estimated mass reservoir of

[1] http://srrttf.org/?page_id=6228

[2] MOA including list of members: http://srrttf.org/wp-content/uploads/2012/07/SRRTTF-MOA-Final-1-23-2012.pdf

[3] Table 1 of Comprehensive Plan

[4] Production of Aroclors by Monsanto that ended in 1979

5,500kg ±550-55,000kg in the Spokane watershed, contaminated by deposition from manufacturing, leaching from building materials or landfills, application of wastewater treatment plant biosolids; sub-surface soils [from cleanup sites] and groundwater have no quantitative estimate available; and, Spokane river which is mostly gravel, cobble, and boulders [mass estimate in surface and deep sediment of 19.232 kg] and Spokane Lake [an estimate of 2.24kg in superficial and 40.6 kg±8-200kg in deep sediments]). In addition, across utilities an estimated maximum potential sum of transformer PCB mass is 12.8kg±6.4-25kg but estimated actual content is zero since none of the utilities use PCB-containing capacitors over 3 lbs.

Table 2. Categories of Legacy Source Areas of PCBs in the Spokane Watershed

Buildings	Environmental	Industrial Equipment
• Fixed • Non-Fixed	• Surface soils • Subsurface soil/ groundwater • Aquatic Sediments	• Electrical Equipment • Hydraulic Equipment

Also, wastewater treatment plants, contaminated groundwater, and stormwater/combined sewer overflows are primary delivery mechanisms. Inadvertent production of PCBs since the 1979 ban is found in commercial products including pigments in printed materials/fabrics and paints. Approximately 0.02-31 kg/year of PCB-11 from yellow pigment is in WA products and 0.86 kg/year in Spokane; the amount in the environment is unknown. However, a mid-point loading estimate for Spokane watershed that accounts for residence time is 9 kg/y±0.2-450kg/yr.

Table 3. Categories of Ongoing Sources of PCB Production

Pigments in Printed Materials/Fabrics	Paints	Other
• Newsprint • Commercial Packaging • Colored Clothing	• Architectural paint • Road paint	• Motor oil • Agricultural chemicals

Studies by Ecology and the Task Force as well as testing by the City of Spokane identified several sources and presence of PCBs in the following: a dry weather source, a groundwater loading source, consumer products, hydroseed, and stormwater catch basins. There are sources outside the immediate watershed area including atmospheric deposition (for which there is no data) and up-

watershed (*i.e.*¸ from Lake Coeur d'Alene, approximated at near zero to 0.047kg). LimnoTech produced two reports that summarize PCB sources[5] and magnitude[6] of PCBs from those sources (see Figure 2 in magnitude report for a map of PCB sources and associated loading rates).

PCB control actions[7,8] or best management practices (45 total, condensed to 27 categories – See Table 10 in Comprehensive Plan):

1. Actions already being implemented and to be continued:
    a. wastewater treatment (ex. state-of-the-art treatment technology for industrial and municipal dischargers to filter PCBs out of their wastewater before it enters the river)
    b. identify and remediate known contaminated sites (such as soil or groundwater)
    c. stormwater controls (ex. capture polluted stormwater through green building design; pipe entrance and pipe system; and, end of pipe)
    d. low impact development (LID) ordinance
    e. street sweeping
    f. purchasing standards for products known to contain PCBs
2. Actions already being implemented and to be improved:
    a. support of green chemistry alternatives
    b. PCB product testing
    c. Waste disposal assistance
    d. regulatory rulemaking to reduce origin of PCBs
    e. compliance with PCB regulations
    f. emerging end-of-pipe stormwater technologies
3. Potential new actions:
    a. Identification of sites of concern for contaminated groundwater
    b. building demolition and renovation control
4. Actions worthy of consideration (11 total)
    Institutional control actions: education efforts/info sharing and governmental practices to help the public understand the scope of PCB pollution and reduction actions, to help businesses and the general public identify, avoid, clean up and/or properly dispose of products containing PCBs
    a. Survey schools and public buildings

[5] http://srrttf.org/wp-content/uploads/2016/04/SRRTTF_SourcesPathways_2016_0316.pdf
[6] http://srrttf.org/wp-content/uploads/2016/04/SRRTTF_MagnitudeSourcesPathways_2016_06-22-16.pdf
[7] Table 8 (p. 39-40) in the Comprehensive Plan contains a list of detailed actions
[8] **Table 10** (p. 45-46) in the Comprehensive Plan contains a summary of control actions condensed into 27 categories as discussed at Task Force meeting held July 27, 2016 in Spokane

    b. Accelerated sewer construction
    c. Emerging wastewater technology
    d. Survey of local electrical equipment
    e. Leak prevention/detection in electrical equipment
    f. Regulation of waste disposal
    g. Removal of carp from Lake Spokane
    h. PCB identification during inspections
    i. Compliance with PCB regulations for imported products
    j. Education on septic disposal
    k. Stormwater source tracing
5. Not considered for future implementation
    a. Leaf removal
    b. PCB product labeling law
    c. Education on filtering post-consumer paper

Control action ratings[9]

1. Suitability: Percentage of total PCB load delivery to the system by pathway of pollutant delivery (>1%, 0.1-1%, <0.1%)
2. Reduction efficiency (main way to prioritize control actions): Extent to which a given action is expected to reduce PCB movement from its target source area or pathway (>50% reduction, 10-50%, <10%)
3. Cost (capital and operating costs): Expected long-term cost of implementing the control action (<$100,000; $100,000-$1,000,000; >$1,000,000)
4. Implementing entity and willingness to implement
5. Pollution prevention hierarchy (built on the premise that preventing creation or release of pollutant is more effective than controlling it once released
6. Existing efforts: Extent to which a given control action relates with existing PCB control efforts
7. Ancillary benefit: Extent to which a given control action provides benefits beyond removal of PCBs
8. Timeframe for implementation and results: Assesses the amount of time it will take for a given control action to be implemented (2-year, 5-year, and >5-year timeframes)

Summary: the most significant delivery mechanisms of PCBs all have existing control action. For example, wastewater treatment plants are required to install treatment systems to reduce nutrient loading that likely concurrently reduce PCB loading; remediation sites contributing to PCB loading to groundwater are being managed or are subject to the Model Toxics Control Act (MTCA) (ex. Kaiser

[9] Table 9 (p. 43) in the Comprehensive Plan is a summary of prioritized control actions based on the ratings

Aluminum); and, stormwater is diverted to groundwater and addressed under Clean Water Plan.

Implementation[10]*:*
Annual Implementation Review summary and five-year Implementation Assessment Report.

[10] See Section 5 (p. 49); also, Table 11 (p. 67) in Comprehensive Plan lists short-term milestones